

## STRUCTURAL OPTIMISATION UNDER NONLINEAR BEHAVIOUR

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### ABSTRACT

The field of structural optimisation has made significant progress in recent years, yet the optimisation of structures exhibiting nonlinear behaviour—such as plasticity and fracture—remains a major challenge. These nonlinearities introduce additional complexities due to the small time increments required in the simulations, resulting in prolonged computational times, which are particularly prohibitive for topology optimisation applications. This session aims to bring together researchers and engineers to discuss recent advances and methodologies for optimising structures under nonlinear conditions. Special attention will be given to strategies that reduce computational demands (such as efficient constitutive models, solution techniques and optimisation algorithms), enabling more practical approaches to topology optimisation in nonlinear regimes. The goal is to share and discuss innovative techniques and computational frameworks that could help overcome current limitations, aiming for a more efficient integration of nonlinear phenomena into structural optimisation processes.